

REMARKS

This Amendment and Response to Non-Final Office Action is being submitted in response to the non-final Office Action mailed June 14, 2006. Claims 15-31 are pending in the Application.

Claims 15-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al. (US 6,417,965) in view of Kinoshita et al. (US 2002/0001124).

In response to this rejection, reconsideration of the Application is respectfully requested in view of the following remarks.

Rejection of Claims 15-31 Under 35 U.S.C. 103(a) -**Ye et al. in View of Kinoshita et al.:**

Claims 15-21 and 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al. (US 6,417,965) in view of Kinoshita et al. (US 2002/0001124). Specifically, Examiner indicates that, at Figure 7 and Column 9, line 66 - Column 10, line 30, Ye et al. teach a controlling device configured for operating an optical amplifying device in one of a gain threshold mode and a constant gain mode, said controlling device further configured for switching the optical amplifying device from operating in the gain threshold mode to operating in the constant gain mode when an absolute value of a gain error exceeds a gain threshold, wherein the gain error is the difference between a target gain and a gain of the optical amplifying device.

Applicants, however, respectfully disagree regarding what is taught by Ye et al. at Figure 7 and Column 9, line 66 - Column 10, line 30. These portions of the reference teach that a controller (236) reads the digital signals from two analog-to-digital converters (232 and 233) and selects a signal from one or the other based on the saturation state of each. This selected signal is used to generate a control signal, via a

look-up table, equation/algorithm, etc., for adjusting one or more operating parameters of an optical amplifier stage (240). The control signal is used to control the optical amplifier stage (240) to “**maintain a constant gain per channel in the amplified output signal**” (Column 10, lines 25-27) or for other purposes. Thus, at most, the reference teaches the “**constant gain mode**” of the present invention, whereby gain is held constant while output power may vary, which is used to deal with significant transient events, for example, as described at Column 5, lines 4-16.

There is no hint or suggestion in the reference of the “**gain threshold mode**” of the present invention, whereby gain and output power are held constant, used when the optical amplifier system as a whole is “stable” to flatten out “drift” in the output power, nor of selectively switching back-and-forth between the two modes based on a thresholding method, as disclosed and claimed.

To further clarify these distinctions Claim 1 has been amended to recite:

An optical amplifying apparatus, comprising:

an optical amplifying device;

a controlling device configured for operating said optical amplifying device in one of a gain threshold mode and a constant gain mode, said controlling device further configured for switching the optical amplifying device from operating in the gain threshold mode to operating in the constant gain mode when an absolute value of a gain error exceeds a gain threshold, wherein the gain error is a difference between a target gain and a gain of the optical amplifying device; and

a measuring device configured to measure power levels on a plurality of points within said optical amplifying device including at least an input power (P_{IN}) and an output power (P_{OUT}) of the optical amplifying device, said measuring device also configured to communicate with said controlling device;

wherein the controlling device selectively switches back and forth between the gain threshold mode and the constant gain mode, and

wherein, while operating in the constant gain mode, the gain threshold mode is re-enabled when no transient events occur during a lockout period.

These amendments are fully supported in the Specification, Drawings, and Claims of the Application and no new matter has been added.

Applicants disclose in the present invention an optical amplifying device that switches from one mode to another appropriately through the use of a gain threshold. Thus, the optical amplifying device not only switches from gain threshold mode to constant gain mode as necessary, but also switches from constant gain mode back to gain threshold mode as necessary. *This allows the gain threshold mode to be re-enabled. Furthermore, such switching happens back-and-forth between the modes as needed and as controlled by the controlling device. Thus, the controlling device controls the optical amplifying device to operate either in the gain threshold mode or the constant gain mode and controls switching between the modes as appropriate.* This is not taught or suggested by Ye et al., nor is this deficiency remedied by Kinoshita et al.

Claims 16-31 are dependent claims either directly or ultimately dependent on Claim 15. Based on the same unique and novel features of the present invention as described above, namely that Claim 15 has unique and patentable novel features, it is respectfully asserted that these dependent claims are now in condition for allowance.

Therefore, Applicants respectfully submit that the rejection of Claims 15-31 under 35 U.S.C. 103(a) as being unpatentable over Ye et al. in view of Kinoshita et al. has now been overcome and respectfully request that this rejection be withdrawn.

CONCLUSION

Applicants would like to thank Examiner for the attention and consideration accorded the Application. Should Examiner determine that any further action is necessary to place the Application in condition for allowance, Examiner is encouraged to contact undersigned Counsel at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, Examiner is encouraged to notify undersigned Counsel at Examiner's earliest convenience.

Respectfully submitted,

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Christopher L. Bernard
Registration No.: 48,234
Bradley D. Crose
Registration No.: 56,766
Attorneys for Applicant(s)

DOUGHERTY | CLEMENTS
1901 Roxborough Road, Suite 300
Charlotte, North Carolina 28211 USA
Telephone: 704.366.6642
Facsimile: 704.366.9744
cbernard@worldpatents.com